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THE MIAMI CONSERVANCY BULLETIN

MAY, 1921

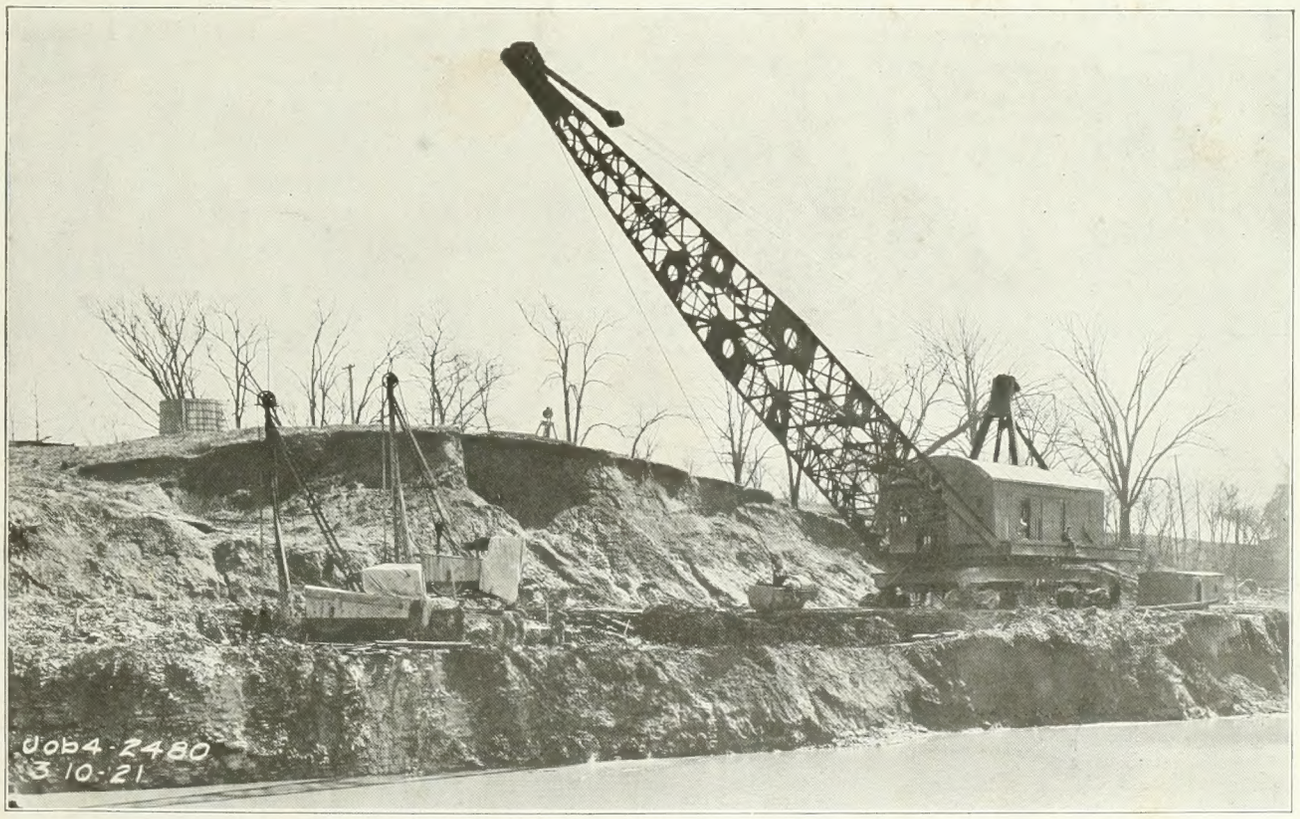

FIG. 304—ROCK EXCAVATION BELOW OUTLET WORKS, TAYLORSVILLE DAM, MARCH 10, 1921

FIG. 305—CHANGES AND EXTENSION OF MARKET STREET BRIDGE AT TROY, APRIL 20, 1921

The present bridge is shown at the right. It is in two parts. The highway section is the higher of the two, on the down stream or far side. The darker colored, narrow section on the upstream side is the traction bridge. The highway bridge is to be swung around to better conform to the alignment of the street, and is to be raised four feet to afford a larger waterway under the bridge.

The river channel through Troy is being greatly widened. The excavation is the foreground is for this extension. The bank on the left is the toe of the new levee. A new span is being added to the Market Street bridge to conform to the widened channel. The photograph shows the progress of the work to date. The foundation for the abutment is being put in where the men are standing on the left in the picture. The steam shovel is removing the old roadway on the downstream side of the street. The steel work for the new bridge span is now being fabricated and will be erected on the ground.

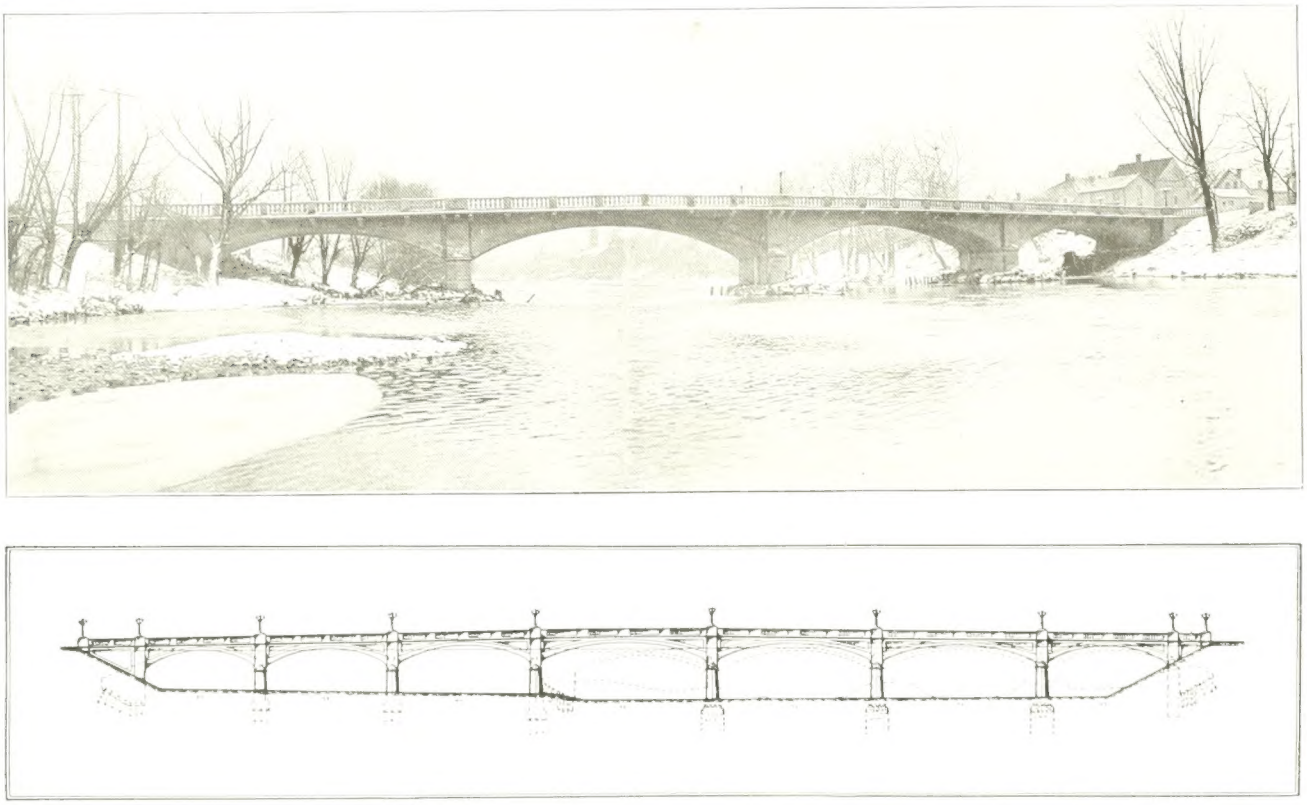

FIG. 306—THE ADAMS STREET BRIDGE AT TROY, DEC. 13, 1915

The upper picture shows the present bridge. The lower one shows the present bridge in dotted outline under the right-hand portion of the proposed new structure, which is shown in full lines. Notice how much higher the new bridge will be than the old one. This is necessary since with maximum flood and the improved river channel the water will rise above the old arches. Three spans will also be added to the old bridge, to increase the width of the river bed. The piers of the old bridge will be carried up and used for the new structure; also the old north abutment will be carried up and made into a pier. The present arches will be used as a support for the new ones during construction in place of erecting the usual "falsework." In all these ways expense will be saved. The present piers have piles driven under them. For additional security they will also be underpinned and protected by a fence of sheet piling driven into the river bed around them. The new piers will be sunk to safe depths in the river gravel, and for additional security piles will be driven beneath them, the design being similar to that shown for Black Street, Hamilton, in the February Bulletin. This work will begin in a few weeks.

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THE
MIAMI CONSERVANCY BULLETIN
PUBLISHED BY THE MIAMI CONSERVANCY DISTRICT
DAYTON, OHIO

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Subscription to the Bulletin is 50 cents per year. At news stands 5 cents per copy. Business letters should be sent to Office Engineer, Miami Conservancy District, Dayton, Ohio. Matter for publication should be sent to Bulletin Office, Miami Conservancy District, Dayton, Ohio.

G. L. TEEPLE, Assistant Engineer, EDITOR.

Visit of Mr. Arthur P. Davis

Mr. Arthur P. Davis, Director of The United States Reclamation Service and Past President of the American Society of Civil Engineers, visited the work of the Conservancy on April 22. Mr. Davis is an engineer of international reputation. Along with Professor Mead and Major Seibert, he was called to China to study and report on the flood conditions in the Yangste Valley. He was also called by the Turkish Government to investigate and report on irrigation projects in Turkestan. Under his direction a very large number of dams were built in connection with the Reclamation Service, including the three highest dams in the world. This wide experience gives his favorable judgment of the Conservancy work especial weight. He was much impressed with the progress which has been made on the project in the face of so many difficulties, and especially with the unusual team work exhibited by the Conservancy organization.

Conservancy Supplies and Equipment for Sale

With the finishing of the Germantown dam, a large quantity of the supplies, material and equipment formerly in use there has been disposed of or removed to other features of the Conservancy work. Nevertheless, there still remain a considerable number of items to be disposed of, to which are being constantly added items from the other points in the District, as the work gradually approaches its end.

In view of these facts, the District will begin at once to sell such articles as are not needed longer on the work. Arrangements have been made to issue a semi-monthly list of the various items of machinery, supplies and materials for sale, which will be posted on the various bulletin boards of the District, and published in the Conservancy Bulletin, giving the description, location and price of each item.

Persons desiring to purchase any article on these lists should get in touch with Mr. Hosea Moyer, Sales Agent for the District, at the headquarters office in Dayton, or with the District's local office at the locality where the item is stored, as given on the list.

The prices given are for cash sale in all cases. For larger articles, approved security, with cash partial payment down, will be accepted by special arrangement.

Enlargement of the Bridges at Troy

By an arrangement made by the Miami County Commissioners the enlargement of the Adams and Market Street bridges in Troy and the raising of the Main Street bridge at Piqua, which were to be made by the County, are being done by the District. To arrange for the expense of this work the estimated cost is added to the Miami County Assessment. In this way it is made easier for the County to finance the work than could otherwise be done.

The largest piece of work in the three bridge modifications is the reconstruction of the Adams Street bridge. Fig. 306 shows a view of the bridge as it stands today. The structure was designed previous to the flood and was under construction when the flood came. It has been recognized ever since that time that the bridge opening was entirely inadequate. In addition the foundations are insuffi-

cient, the restricted opening causing such a scour during the flood that a hole was washed in the river bed immediately below the bridge to a depth 12 feet below the concrete foundation. The computations made in the design of the Troy local improvement show that the water surface at extreme flood would be above the top of the existing arches. It was evident, therefore, that the bridge is too short, the top is too low, the foundation is too high and it is inadequate in water way, all these features combining to make it unsafe in times of big floods.

The proposed enlargement is shown in Fig. 306. From this it will be seen that the bridge is to be enlarged from a 4-span to a 7-span bridge. It is the purpose, in order to make the expense of construction as low as possible, to incorporate the present piers into the new structure. Also, the old arches will be used as a support for the new spans just above them, during the work of construction, in place of erecting the usual "falsework." It is expected that in these ways the cost of reconstruction will be greatly decreased.

A levee on the north side of the river above Adams Street is now being constructed and when completed will confine all the river flow to the bridge opening. In order to make the present piers secure they will be underpinned with concrete and protected by sheet piling. The pile foundation which was built under the present piers simplifies the work involved in this underpinning. After the completion of the bridge it is proposed to excavate the river bed so that the present arches may be dropped and buried in it below the grade of the improved channel. The new piers and abutments will be carried to a safe depth and supported on pile foundations. The structure will have "cantilever" sidewalks on each side. The sidewalks and carriage way will have the same width as at present.

The Adams Street and Market Street bridges carry considerable traffic from the city of Troy to the villages and the county north of the river. It is not possible to close both bridges at once, and as work is now under way in the construction of the additional span for the Market Street bridge, the work upon the Adams Street bridge will not be commenced for several weeks.

The District is also engaged upon the enlargement of the waterway under the Market Street bridge at Troy. The two existing trusses are to be raised about 4 feet and an additional span of about 100 feet in length is to be built on the north side of the pres-

(Continued on page 155)

The upper diagram shows the river stage at Main Street bridge, Dayton, during the storm of April 15 to 23, 1920. This covers the two rises in the river caused by the double storm. The curve represents the rise and fall of the water. The number of spaces between any point on the curve and the horizontal base line marked "O" represent the stage of the river in feet above the zero of the Main Street gage. The curve shows that the two crests of the flood were 9.7 feet at 10:00 P. M. on Saturday, and 16.3 feet at 9:00 A. M. on the Wednesday following.

The lower diagram shows the rate of rainfall that caused the river stages shown by the diagram above. In this case each vertical space represents 1/10 of an inch of rainfall. This storm consisted of a series of heavy showers, with periods of no rain between. How the river stage lags behind the rainfall is clearly shown. Showers at 6:00

(Continued below)

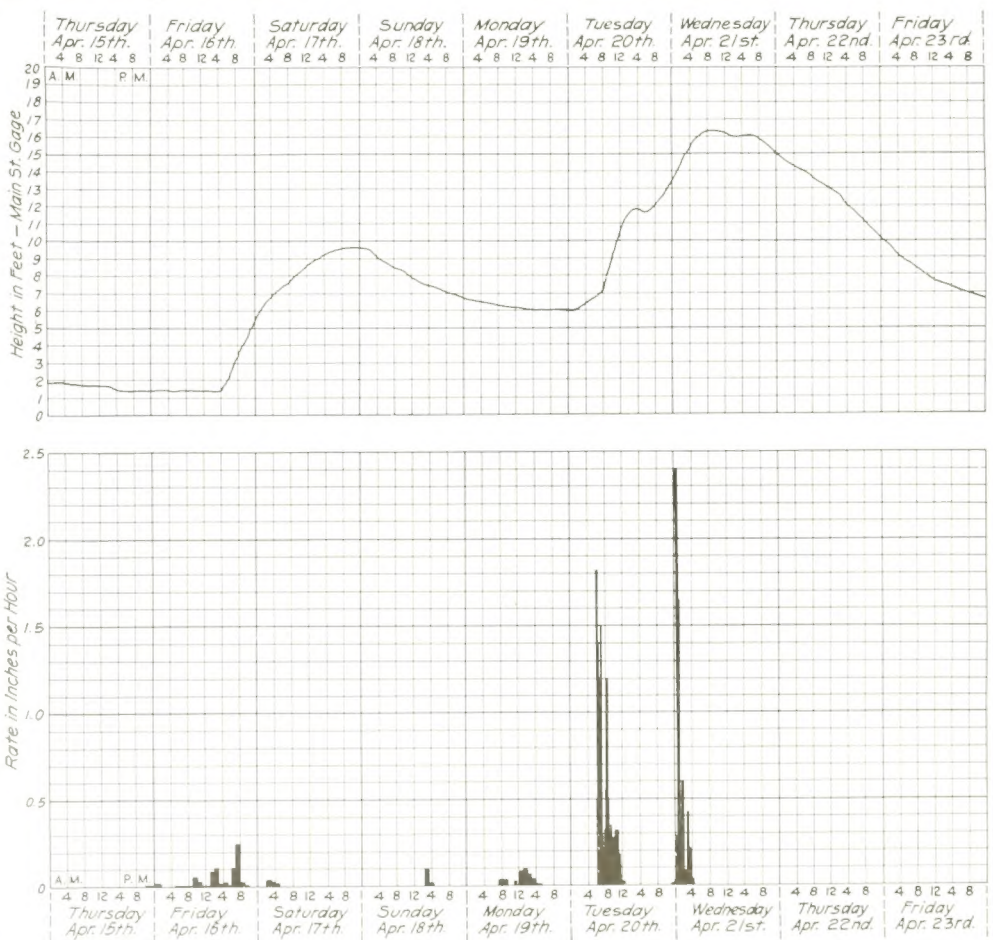


FIG. 307—DIAGRAMS SHOWING COMPARISON BETWEEN RAINFALL AND RIVER STAGE.

A. M. and 8:00 A. M. in and around Dayton caused humps in the curve about 3:00 P. M. in the afternoon. After the hump caused by the rain at Dayton subsided somewhat, the river began to rise again when the water from farther up the valley reached Dayton. A similar effect may be seen from the shower occurring shortly after midnight Tuesday. Except for the slight dropping of the hump caused by the local shower, the river stage did not begin to fall until 6:30 P. M. Wednesday, despite the fact that Wednesday was bright and clear. The sharp showers indicated by the tall black strips were showers in Dayton. Similar showers took place up and down the valley at different times.

The Forecasting of Miami Valley Floods

Telephone Reports from Field Observers, Applied to Charts, Permits Forecasts of River Stages 10 to 20 Hours Ahead, Within One Foot

To the average citizen of the Miami Valley, the river stages mean little save when, after a heavy rain, the river rises in an ominous manner. Then the probable stage that will be reached immediately becomes of the liveliest interest to him, and together with a thousand or more of his friends and neighbors, he calls up the Conservancy to find out what the river height will be. The forecasts issued by the District have generally been within a foot of the real stage, and many times but an inch or two has separated the actual and the estimated river height. Generally the predictions are more accurate for Dayton and the cities below than for the upper points, such as West Milton, Piqua and Springfield. The service is accepted much as a matter of course, and what is back of the simple figures given with such a degree of precision is a mystery to most people, including many engineers. The prediction is not a guess, as many suppose, but is a definite calculation based on measurements and past experience.

The study of rainfall, runoff, and flood history of the Miami Valley and the consideration of the laws governing such phenomena were first undertaken by the engineering staff of the Flood Prevention Committee in 1913. The volume of water that might be expected during floods in the Miami Valley was, of course, the determining factor in all the plans for the flood prevention work.

In 1916 a flood forecasting system was established, both to give warning to the Valley in time of danger and also to have such a service well established and in good running order by the time the construction period opened. The District in carrying out its widely diversified construction program is vitally interested in the daily stage of the river, and the stages resulting from moderate rain falls, as well as the larger floods that approach the danger line. Originally a "side line" in connection with the major studies of rainfall and runoff as a basis for the design of the flood prevention work, the flood warning service is now used principally in connection with the work of construction.

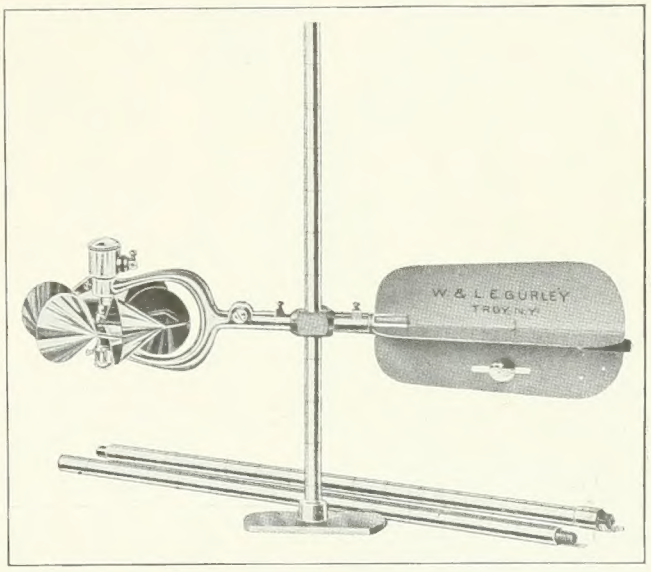


FIG. 308—PRICE CURRENT METER

This instrument measures the velocity of a river current by registering the rapidity of revolution of the little wheel at the left. The wheel rotates on a vertical axis, and carries 6 cone-shaped paddles at its rim. These catch the current and cause the wheel to revolve. The wheel is carried by a forked rod armed at its rear end with a rudder which keeps the rod pointed upstream, the rod being carried on another rod which is pushed down into the water from above and held firmly against the bottom. The vertical rod is jointed to permit use at various depths, the forked rod being slipped up and down on it according to the depth at which the river current is to be measured.

The flood forecaster has a mania for information. The principal part of his work consists in carefully collecting accurate data on the weather, soil conditions, and the history of past floods. He has certain tools with which he works.

His most important tool is his staff of observers. The map, Fig. 309, shows where these are located. Some of them are U. S. Weather Bureau employees who also make special reports to the Conservancy District through co-operative arrangements with the Weather Bureau. They are evenly distributed over the whole area of the valley. The individuals comprising the staff of observers are selected with great care for their reliability and intelligence. They are people who have other occupations, and give but a small fraction of their time to the flood warning work. From them come daily observations on weather, soil, and river conditions.

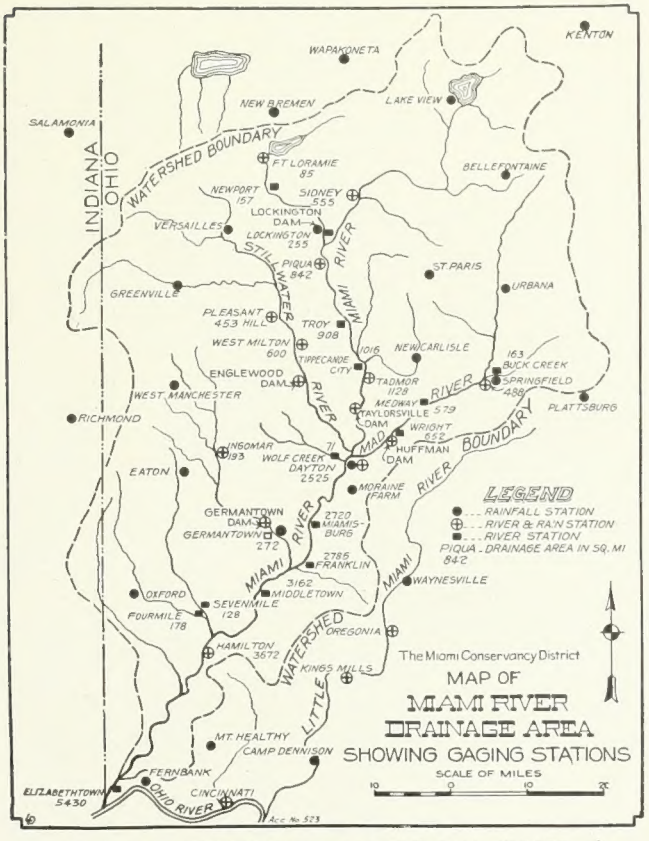


FIG. 309—DISTRICT GAGING STATIONS

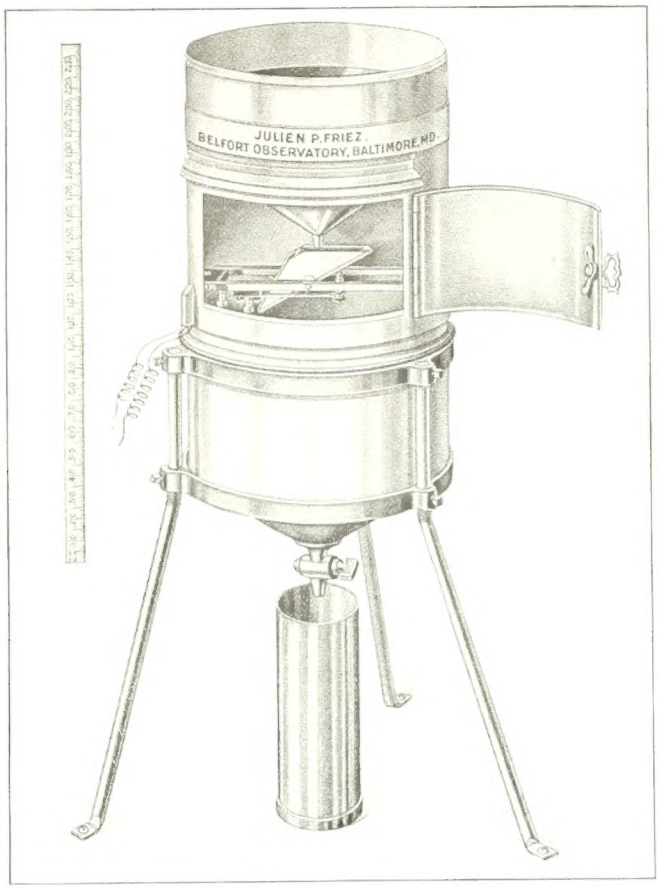


FIG. 310—RAIN GAGE

This is a "tipping" gage, such as is in use at the U. S. Weather Bureau Station in Dayton. Rail falls into the circular pan or vessel at the top and runs down a central tube into the tall narrow vessel at the bottom, in which it is measured by the measuring stick at the left. The sizes of the upper and lower vessels are so adjusted that one inch of rain will give ten inches in the lower vessel. On the way down the rain fills the upper bucket of the tipping mechanism, which, when full, overbalances, tilts and empties, bringing the second bucket up, which then fills and the process is repeated. Each tilt is electrically registered and means 1/100 inch of rain. The rapidity of the oscillation measures thus the intensity of the rainfall.

The information on the rainfall comes from readings taken on rain gages. A rain gage is a wide metal pan of known area, that is placed in a level position open side up. The falling rain intercepted by the pan is drained into a narrow tube. As the cross section of the tube is only one-tenth that of the pan, an inch of rain will show in the tube as 10 inches of water. By so magnifying the rainfall, accurate measurements are more easily obtained. The tube is read by a scale that gives inches of rain directly, and reads to one-hundredth of an inch. The gage is so carefully made that the displacement of the measuring stick is taken into account. (Fig. 310.)

The observers also read the river gages daily. The gages, except two electrically operated, are all staff gages, like the one shown in Fig. 312. By using a "rating curve," Fig. 311, the amount of water flowing past the station, at the different gage heights is determined. The rating curve is made by plotting the results obtained by actually measuring the amount of water at as many different river heights as possible. It is revised as conditions change.

The river stations where the gages are located are selected because of the uniform cross section and grade of the river channel at that point and are usually at some bridge, in order to simplify the physical work of measuring. The water in the streams does not flow in a uniform manner, even in the selected channels, but is faster in the middle of the stream, slower near the bank, faster at the top, slower at the bottom. Therefore, readings are taken at points at a uniform distance apart, across the width of the river. Two readings, one at 2/10 and the other at 8/10 of the depth, are taken at each point. This is termed the "two point method." The readings are taken with a Price current meter (see Fig. 308). The rate at which the wheel of the meter spins, gives, with the aid of a table, the velocity of the water. The average velocity in feet per second for each division of the section is the average of the readings, at 2/10 and 8/10 of the depth. The discharge for each division is its average velocity multiplied by the square feet in the area of the division. The total discharge of water in cubic feet per second is the sum of the discharges of all of the divisions of the section.

The discharge must be determined by actual measurement for different stages of the river, as the discharge does not vary directly as the stage. Twenty to thirty separate determinations of the discharge are necessary for stages from low water to large floods. As high stages are comparatively infrequent, a year or more of intermittent work is necessary before a good rating curve can be prepared. In general, the longer the river station is maintained, and the larger the number of gagings taken, the more dependable will be the results.

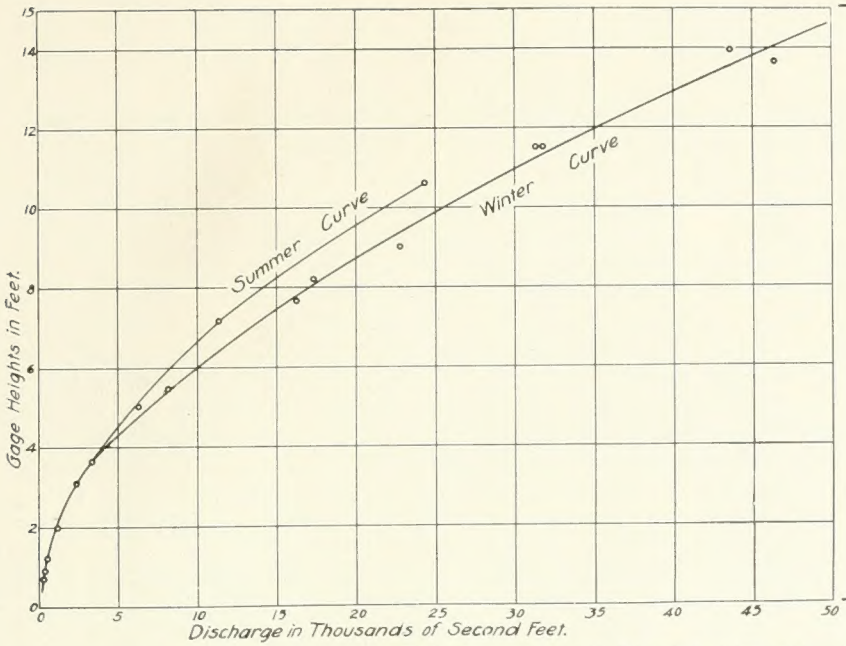
Every water shed has its peculiarities, and the idiosyncracies of the Miami are especially pronounced. Data on the performance of other water sheds under various conditions are only of general application to the Miami. Therefore, the action of the various portions of the valley under different conditions of rain intensity, ground saturation, etc., had to be determined by observation of actual occurences, and the results tabulated and studied. Under the same conditions, the storm of today will produce much the same results as the storm of yesterday, on the same water-shed. The preparation and use of these experience tables are an essential part of flood forecasting.

The U. S. Weather Service reports are received daily, and oftener in time of storm. The District has received close co-operation and great assistance from the Bureau at all times, and does not attempt to duplicate their service.

The tools the forecaster works with take years to build and develop and patient endeavor to keep in repair, as they must always be ready to meet the ever present storm menace.

The forecaster studies the U. S. Weather Charts every day. He notes a marked "low" to the west of us, moving eastward, or other conditions that generally speaking mean a heavy storm over the Miami Valley. The forecaster calls up the construction jobs and warns them of what is probably coming.

When the storm breaks, the organization in the field knows just what to do. Each observer watches



These rating curves are for the Miami River at the Main Street Bridge station at Dayton. In this case two curves have been developed, as winter conditions cause the channel action to be quite different from its behavior in summer. The vertical scale gives the height of the river on the gage. The horizontal scale gives the discharge in thousands of second feet. For instance, during a winter month when the river reaches a height of ten feet on the gage on the Main Street bridge, 25,600 cubic feet of water are passing through the bridge openings every second. The small round circles represent the actual measurements that have been made by the hydrographers during periods of different river stages. As wide a variation in the stages as is possible to secure is used. The river improvement in Dayton is rapidly changing conditions at this station.

FIG. 311—MIAMI RIVER RATING CURVES

his rain gage, and when 3/4 of an inch of rain falls he telephones to the forecaster at his desk in the Dayton office and telephones again, each time an additional one-half inch of rain falls. The river gage readers phone when the first four-foot rise comes in the stream, and then when each 2 feet additional rise comes. The telephone is used, because telegrams are often delayed and because the phone conversation enables the forecaster to ask questions as to general conditions.

The forecaster has a map of the valley before him. As the information comes in it is posted on this map on the spot where the readings are taken. As the storm progresses, and the calls keep coming in, and the information is plotted, the forecaster really has a picture before him that shows where the center of the storm is located, how fast the rain is falling, and how fast the streams are rising. He knows, from his daily reports, the conditions of the ground. He has his experience tables at hand. He is ready, by utilizing all his tools, to work up his prediction.

The various parts of the Miami Valley act in different ways during a storm. So the valley is divided into sections. A river station is on the lower

The picture shows the staff gage on the middle pier of the bridge over the outlet channel just below the Lockington Dam. The stream section at this point is very uniform, making the discharge measurements especially dependable. The measurements of the hydrographers are taken from the bridge except at times of extreme low water, when it is possible to wade across the stream. The divisions into which the section is divided are permanently marked on the bridge, so that the measurements are always taken at the same place, even if several months elapse between the readings. The staff gage itself is of carefully selected cypress. Cypress is used because it does not warp, and is easily worked. Special care is used in the selection of paint.

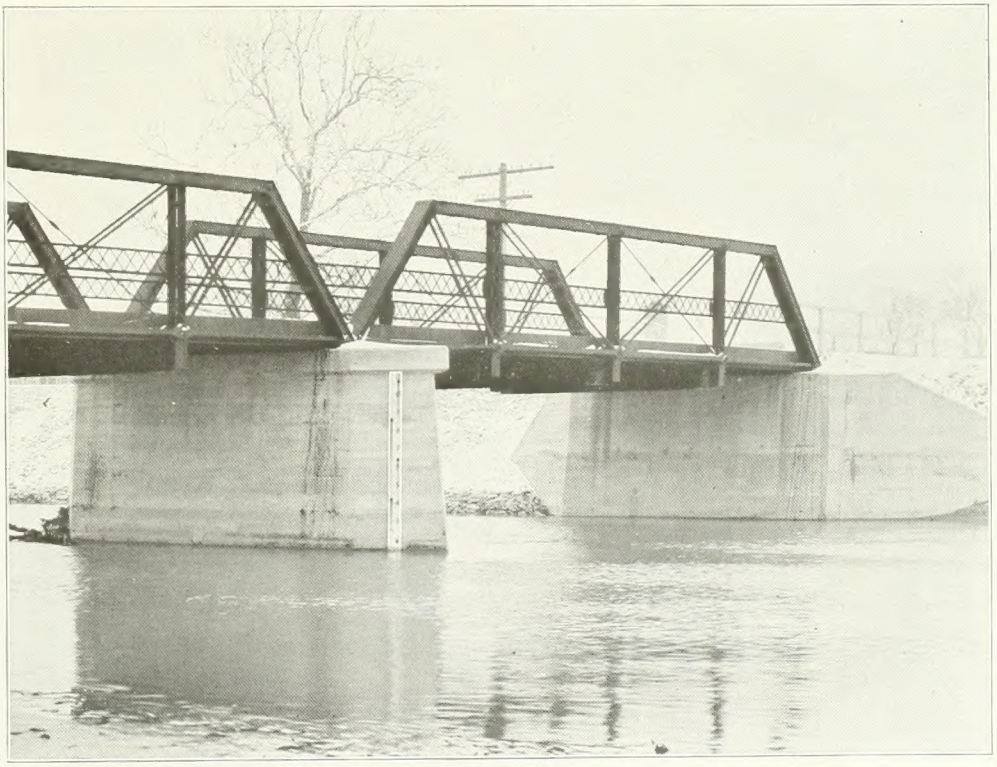


FIG. 312—STAFF GAGE ON LORAMIE CREEK, FEB. 2, 1921

end of each section. For example, the Stillwater basin above West Milton, containing 600 square miles, is a typical section having particular effect on Dayton and towns below. Other sections are the Miami above Piqua, the Mad above Springfield, the Miami from Piqua to Tadmor, the area above Dayton, Twin Creek, Four Mile Creek and Seven Mile Creek.

Knowing the ground conditions, noting the location of the center of the storm, and obtaining the intensity of the rainfall from the map before him, the forecaster predicts, using his experience tables, how much of the rain will reach the streams, how fast it will come, and when the crest will be reached at the river station on the section. This prediction is for the individual section only. It is repeated for each section of the valley. Now, experience has shown how long it will take for water passing a gaging station to reach the towns below. For instance, it takes twelve hours for water to come from West Milton to Dayton under flood conditions such as prevailed in the spring of 1921. This time varies with the extent of the flood and with the location of the section. Combining this information for all the divisions, the river stage as far in advance as twelve to twenty hours for Dayton, and longer for cities below Dayton, can be predicted with surprising accuracy.

As the storm progresses, the forecaster keeps eight to twelve hours ahead with his predictions. The center of the storm generally passes the Miami Valley from twenty to thirty-six hours before the crest is reached in the river at Dayton and below. After the rain ceases to fall, better forecasts can be made, and generally speaking, the predictions of the time and the height of the crest stage are then the most accurate. During the high waters of March, 1921, the final crest forecast for Dayton was given twenty-four hours in advance.

The construction forces of the District have much equipment in reach of even moderate river stages. The construction forces receiving advance notice of the amount of water that may be expected, remove out of harm's way the equipment that the water might injure. They do not move anything that is at a higher elevation than the one set by the forecaster. This alone has saved to the District many times the cost of the service.

The Miami through Hamilton receives the flow from three streams—Four Mile Creek, Seven Mile Creek and Twin Creek—that have steep slopes, quick run-off and good sized drainage areas. A relatively high stage at Hamilton is reached in a few hours, then the river falls somewhat, to be followed by another rise caused by water from farther up the valley. Little forecasting can be done for this first rise, as the water gets to Hamilton almost as quickly as the readings from the observers reach Dayton. Ordinarily the first rise does not reach dangerous heights, and accurate predictions can be made of the second rise. In the same way, Wolf Creek often causes a sudden small rise at Dayton, but this gets out of the way before the main rise comes.

As high stages of the river are comparatively infrequent, the hydrographers, who are the men who measure the actual flow of water in the streams, hasten out in times of flood to secure readings on the streams. During especially interesting floods, engineers are drawn from other parts of the work to assist in doing this.

The flood forecasting is not costly, and has been invaluable to the District. It exists not only for the benefit of the construction work, but also for the good of the public. An operator is on duty day and night at the Conservancy Building at Dayton, and gives information on river stages to everyone who asks. During high water many persons avail themselves of this service.

Part VIII of the Technical Reports, which will be ready for distribution May 1, contains a chapter on flood forecasting, and also much of the data on which the forecasts are based.

When the Conservancy Dams are finished, new conditions will be introduced that will modify the present methods. The principal thing to determine then will be how deep the water in the basins will be. Only a limited amount can pass the dams, and the volume will depend on the depth reached by the water in the basins.

The water has been drained out of the canal, and some of the trees cut, preparatory to filling the canal with earth. This view is looking towards the Main Street bridge from a point near the start of the levee. The constricted space is clearly shown. First comes River Street, then the Western Ohio tracks, then the canal, then the narrow bank, and then the Miami River, very close to the canal.

FIG. 313—THE BED OF THE MIAMI & ERIE CANAL AT PIQUA

The Work at Piqua

The big Lidgerwood dragline that was formerly at Germantown has been moved to Piqua, erected and is now busy moving dirt on the first section of the work there.

The first section consists of levee work above Main Street. The nature of the ground makes construction difficult at this point. River Street runs north from Main Street along the Miami and Erie Canal. The space between the property line and the canal is so narrow that the street, which also contains the tracks of the Western Ohio Railroad, is very narrow. A thin bank separates the Miami and Erie Canal and the Miami River. These conditions are shown by Figure 313. There is no room for a levee high enough to protect the town, in any place except in the canal or in River Street.

Many devices were considered that would overcome these difficulties, but no satisfactory way was found until the state gave permission to fill in the bed of the Miami and Erie Canal, and build the levee on top of the fill. Not only does this give room for an adequate levee, but will provide space for widening River Street if the city wishes to do so. The canal has long been an eye-sore to the citizens of this part of town, and its removal will greatly improve the property in the vicinity. Upon the completion of the levee great possibilities will exist for the beautifying of the river bank.

Due to the constricted space, no material is close at hand to use in filling the canal and building the levee, except in the river bed itself. The best way to reach this material is with a dragline with a long boom. The machine selected is fitted with a hind itself. This is shown by Fig. 314.

Work was started at the upper end of the levee, where it joins high ground. The machine is building its own roadway by roughly filling up the canal ahead of itself, and is finishing the filling of the canal, and building the levee on top of the fill, behind itself. This is shown by Fig. 314.

There was an extensive growth of trees on the canal bank next to the river. Much thought was given to the problem of preserving these. The people of Piqua were much interested, and after conferences with them and further study, it was found possible to preserve many of them, although some had to be cut to permit the use of the dragline machine. Any other method of filling would have necessitated the transportation of the material by wagon or train, with a very large increase in the cost, as 60,000 cubic yards of dirt are to be placed on this portion of the work.

The city of Piqua will have an opportunity of securing a greatly improved street when the filling work is done. The District, however, will not go farther than the filling of the canal.

This picture is looking in the opposite direction from Fig. 313 and was taken from the same point. The dragline is reaching over into the river for a bucketful of earth. The water in the river is hidden by the narrow bank of the canal at the right of the picture. The two men in front of the machine are standing on the track the dragline is building in front of itself by filling up the canal bed. The small group of people in the background are standing on the new levee the machine is building behind itself as it advances down the old canal bed, this levee occupying the space formerly occupied by this bed. The levee will be eight foot wide on top, with side slopes of two feet horizontal to one vertical, and will not occupy the entire bed of the old channel. Enough space will remain so that River Street can be materially widened.

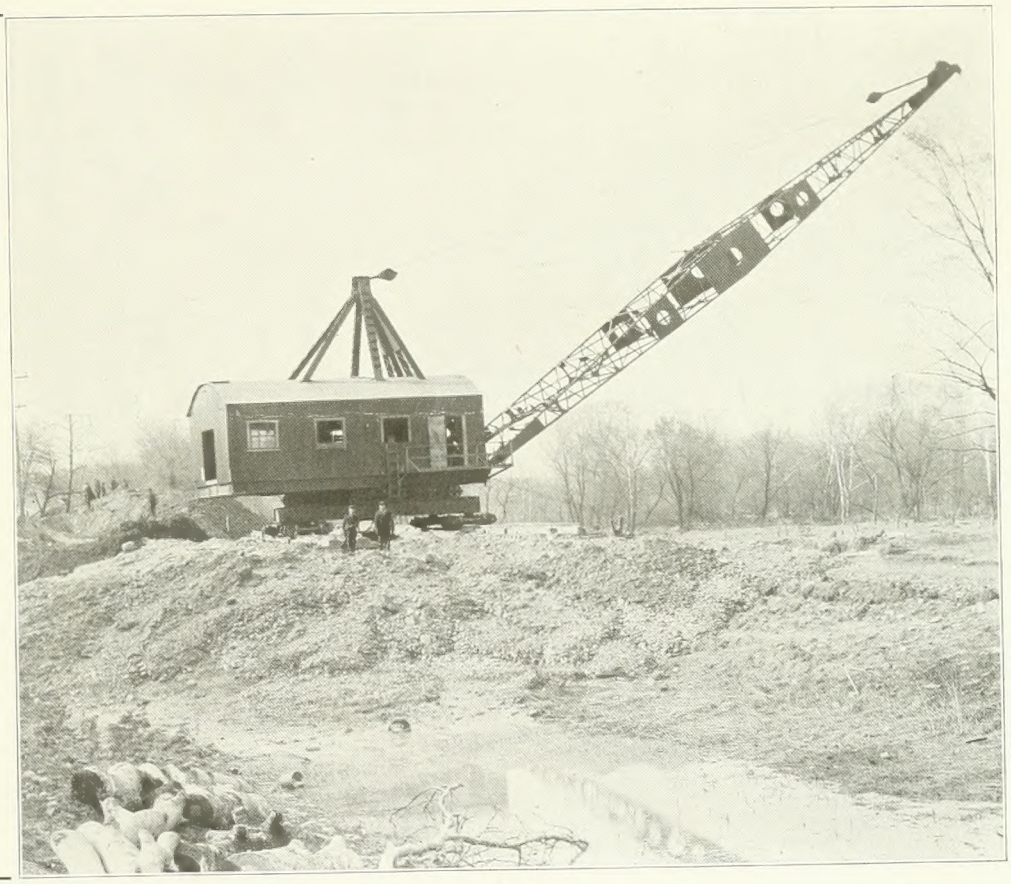


FIG. 314—THE START OF THE LEVEE AT PIQUA

March Progress on the Work

GERMANTOWN

Guard rail fence on top of the dam has been painted. Additional guard rail fence on Road No. 1 on the stretch between the north end of dam and the spillway is now under construction.

The road embankment at the Boomershine bridge, which was partially washed out during the last flood, has been repaired and is again open to traffic.

The planting of trees in the river basin and the seeding of the dam slopes has been completed.

Some work has been done on riprapping of the outlet channel below the concrete revetment. This work will be finished in a day or two.

A. L. Pauls, Division Engineer.

April 15, 1921.

ENGLEWOOD

Hydraulic fill operations were continued in the section of the dam east of Cross Dam No. 2 until March 31, when the filling of the gap left for the temporary spillway was begun. To March 22, which is the date upon which progress is measured for the estimate, 115,000 cubic yards were pumped during the month. The total fill on that date aggregated 2,420,000 cubic yards, or 68 per cent of the entire dam. Two new pumping records were established during the past month. The record for a week's run was advanced to 5,090 cars and for a two-shift run (day and night) to 990 cars. At this writing, April 15, the fill in the temporary spillway gap has been carried up 30 feet. Work on Sump No. 4, to be used in pumping materials into the dam, has proceeded to the point where its early use may be predicted.

The large electric dragline working on spillway excavation has finished and been shipped to Tippecanoe City for use on the local protection at that place.

The concreting plant at the permanent spillway has been given a preliminary try-out and is ready for service. The gravel screening plant is again in operation and is delivering concrete aggregates to the bins at the spillway. Excavation at the spillway has progressed to the point where concreting will begin in a few days. A small steam dragline has been moved into the borrow pit and is excavating gravel for screening into concrete aggregates.

Additional tree planting, as a part of the scheme for reforesting the reservoir basin, is in progress.

H. S. R. McCurdy, Division Engineer.

April 15, 1921.

LOCKINGTON

Work on the dam the first six weeks of this season consisted principally of hydraulic fill and the stone surfacing. About 60,000 cubic yards of the fill and about 2,500 cubic yards of stone work, including drain gutters on the dam, were placed.

The drilling for blasting the blue clay banks in the borrow pit is practically completed.

The wet weather this spring has greatly delayed progress on Roads 9 and 11, but both will be completed within a few days.

Preparations for building the concrete weir, which blocks the space between the walls of the outlet works, and for constructing the bridge above it, are nearing completion. The derrick, which will be set in an elevated position between the walls, is ready for erection.

On the night of April 16 the dredge pump house caught fire during the electrical storm. The cause of the fire is not definitely known, but it appears that it was either from the effects of lightning or from rain water reaching the 2,300-volt wiring. Good work on the part of the operating crew prevented a total loss of the buildings and equipment. Fire was kept out of the motors and away from three barrels of oil, one barrel of grease, and a can of gasoline. The principal damage was confined to the operating room. The switchboards, resistance grids and wiring were entirely destroyed. It is expected that replacements and repairs will be completed and the pumping resumed in about eight days.

Barton M. Jones, Division Engineer.

April 18, 1921.

TAYLORSVILLE

The Lidgerwood dragline has finished the temporary outlet for the new channel and has moved to the extreme lower end of the permanent outlet channel, where it is finishing this channel as it backs up. About 200 feet of this channel has been completed and the excavated material has been cast up on to the high ground to the east, whence a little later it will be sluiced to the south dredge pump.

The installation of the south sluicing outfit has been finished and it was started today on the closure of the old river channel.

The north sluicing outfit has been running two 10-hour shifts per day all this month, pumping into the west section of the dam.

Roberts Brothers are making good progress with the rock on the north toe of the dam. The rock fill has been crowded about one-third of the way across the old river channel, and they are now arranging to support their tail track for the empty cars on a cableway, so that the fill can be carried across the river without so much shifting of track.

It is expected that in this way they can close off the old channel on the upper toe by the time the lower toe closure is sluiced in and pumps set for cleaning out that part of the old channel between the two toes.

Mr. Crampton has started finishing the grade on Road 12, and will start the placing of gravel in a short time.

O. N. Floyd, Division Engineer.

April 21, 1921.

HUFFMAN

Placing of material in the main embankment of the dam has continued to be the major operation during the past month.

Material totaling 81,000 cubic yards was put in during the month of March, 62,000 cubic yards of this amount being excavated by the electric dragline in the main borrow pit in the river valley. The remaining 19,000 cubic yards were sluiced from the pit at the north end of the dam.

Rock paving on the upstream slope of the dam is being continued. The south half of the dam had been covered up to the first berm. These rocks are the oversize rejected by the revolving screen at the main pump house.

C. C. Chambers, Division Engineer.

April 19, 1921.

DAYTON

Excavation below Stewart Street is being continued by dragline D16-15. This machine is now grading the spoil bank on the right and is excavating along the left bank of the river, throwing the material over toward the other bank preparatory to hauling it out on cars. D16-8 is making good progress with levee construction on the right bank of the river downstream from the Big Four railroad bridge. D16-19 is cleaning up the track fill left by D16-16 upstream from Fifth Street bridge. This machine has also placed a part of the backfill for the First Street wall.

Excellent progress is being made on the big river walls at Beach Avenue, First Street and the First Baptist Church. Work has been started preliminary to excavating for the Platt Iron Works wall. Walls have been completed, since the last report, at the southeast wing wall of Keowee Street bridge and on the north bank of Wolf Creek, one at Ferguson Avenue and another west of Williams Street. A wall is also under construction along the Delco-Light property east of Taylor Street. The wasteway culvert on the south bank of Mad River, just east of the old Miami and Erie aqueduct, is nearing completion. Since March 31, about 1,000 cubic yards of concrete have been placed in the walls, making that work 76 per cent completed.

The Finke Engineering Company will soon finish the Apple Street culvert. Price Brothers Company has started revetment work on the east bank of the river near Herman Avenue. J. C. McCann is making good progress on the Mad River south levee west of Findlay Street.

To date, 65,950 cubic yards of sand and gravel have been issued from the Sunrise Avenue gravel plant.

The total quantity of channel excavation (Item 9) completed up to April 1 was 947,500 cubic yards. Levee em-

bankment amounted to 187,600 cubic yards. The total yardage handled was 2,040,000. These figures do not include 105,000 cubic yards of excess excavation for scowing canals.

C. A. Bock, Division Engineer.

April 21, 1921.

HAMILTON

The work on Item 9, channel excavation, by the electric dragline, has been delayed somewhat by high water. The track has been laid across the trestle and along the first cut on the west side. The dragline is now crossing the river at station 92.

All the footings and piers of the Black Street bridge have been completed. The copings and tops of piers, to the skewbacks of the arches, have been poured on all piers except No. 5. The erection of the false work is in progress on spans 1, 2 and 3, and the piling for the false work has been driven for all the spans. The backfilling of the west abutment has been completed and the Hamilton Belt Railway track moved back to its original location.

The Bucyrus Class 14 dragline has completed its work at the bridge and is finishing the excavation on the north side of the old river channel.

The work of building forms and concreting is being continued on the Black-Clawson wall.

C. H. Eiffert, Division Engineer.

April 22, 1921.

PIQUA

Work here began on March 21, at the point on River Street where the Miami and Erie Canal leaves it. The old canal here is being filled up, the earth being taken from the river bed. The new levee will be built on top of the filled-up canal bed. The work is being done by the Lidgerwood machine formerly at the Germantown dam, this machine having been thoroughly overhauled and in part rebuilt for the new work. It is equipped with a 100-foot boom and a 4½-yard bucket. The quantity of earth to be moved between the point of beginning and the Main Street bridge is about 60,000 cubic yards.

Albert Schroeder, Assistant Engineer.

April 15, 1921.

UPPER RIVER WORK

Troy. The Dragline D-16-21, at work on the Donald Jeffrey contract, completed that section of the east levee being made from side borrow, and moved across the river during the first part of April. Fortunately, the river crossing was made at the lowest stage of the river that has occurred this spring... The total embankment made in the east levee to date amounts to 23,500 cubic yards, and since crossing the river the dragline has placed about 5,000 cubic yards of material in the levee along the M. & E. Canal.

From the 22nd of March to April 5th, Daniels' outfit was at work for the District, excavating for the north abutment of the Market Street bridge. The high water of March 28th caused considerable delay. Since then Daniels has excavated 2,500 cubic yards from the old approach to Market Street bridge and the river channel below.

Price Bros. completed the pouring of concrete for the footing of the north abutment of Market Street bridge on April 13th and the forms are now ready for the next eight feet in height. The contract for remodeling the old north abutment into a pier has also been let to Price Bros. and this work will start immediately.

Tippecanoe City. The electrical department has practically completed setting up the steel tower for the transformers and the lightning arrestors at the junction with the Dayton Power and Light Co. power line at the south end of town. This equipment came from the Germantown dam.

The dragline D-16-4, a Class 24 Bucyrus electric, with a 135-foot boom, has arrived in town and is being set up near the north end of the proposed levee. This machine came from Englewood, and is to build the levee skirting the town on the east side and following the present location of the M. & E. Canal.

A. F. Griffin, Assistant Engineer.

April 19, 1921.

LOWER RIVER WORK

Miamisburg. Since our last report Cole Bros. have completed 1,000 lineal feet of levee containing 15,000 cubic yards of material, along the east bank of the river at the south end of town.

Franklin. During the past month the dragline has finished the temporary channel for the tail race of the American Writing Paper Company; moved northward and cut a temporary channel for the headrace; made the excavation for the floodgate structure in the headrace; thrown a dam across the west side of this excavation and moved across to the west bank of the hydraulic canal. The next work it will start will be the widening of the river channel.

Middletown. Except for the completion of repairs to the Hydraulic Street wall there has been no work done in Middletown this month.

F. G. Blackwell, Assistant Engineer.

April 18, 1921.

RAILWAY RELOCATION

Big Four and Erie. This Big Four old rail is now removed except 4 miles to be used for an industry at Enon. The Erie sidetracks at Osborn are finished. Salvaging of old line material continues.

Ohio Electric. The new line, Fairfield to Huffman, is operating. Most of the Wilbur Wright Field war track material will go into the new line east of Fairfield, work on which is begun. Grading at Mad River bridge is completed. Filling of Mud Run gap, at crossing of new steam and electric lines, remains to be completed.

Baltimore & Ohio R. R. Work completed.

Albert Larsen, Division Engineer.

April 20, 1921.

RIVER AND WEATHER CONDITIONS

The rainfall during March was considerably greater than normal. At the Dayton Weather Bureau station the total for the month amounted to 7.41 inches or about 3.96 inches more than normal. At the District's stations the amounts varied from 6.17 inches at Pleasant Hill to 8.39 inches at the Taylorsville Dam.

Two small floods occurred; one slightly smaller than the average yearly flood, and the other slightly larger. The first crested at Dayton on March 9, at a stage of 9.7 feet; the other on March 28, at a stage of 11.9.

At the Dayton Weather Bureau Station the mean temperature for the month was 50.4 degrees, or 10.1 degrees greater than normal; there were 4 clear days, 17 partly cloudy days, 10 cloudy days, and 16 days on which the precipitation amounted to 0.01 of an inch or more; the average wind velocity was 12.6 miles per hour, the prevailing direction being from the southwest; and the maximum wind velocity for five minutes was 42 miles per hour from the southwest, on the 8th.

IVAN E. HOUK, District Forecaster.

April 21, 1921.

The New Bridges at Troy

(Continued from page 148)

ent structure. In order to meet the location of Market Street at its intersection with the new north bank of the river the bridge is to be rotated slightly about the south end, the north end of the present north span being moved about 7 feet down stream.

The concrete for the north abutment is now being placed. Excavation is also being made at the north end of the present bridge to permit the change necessary upon the old abutment at that point. This abutment is to be converted into a pier and to make it secure it will be increased in thickness, underpinned as far as practicable and protected by a steel sheet piling and concrete apron. The photograph, Fig. 305, shows a portion of the new north river bank and indicates roughly the extent to which the bridge is to be lengthened. A portion of the forms for the new north abutment may be seen at the left of the picture. The approach to the bridge from the city side will be made by constructing a center carriage way conforming to the width at the bridge and retaining such of the carriage way at the sides as will be necessary for the local street traffic.

A contract for the new steel truss for the bridge has been made with the Central Bridge Company of Indianapolis and the preparation of the steel work is under way at the company's shops so that the truss will be ready for erection as soon as the foundations are completed.

At the present time it is uncertain as to the future of the Traction Line bridge which now extends on the west side of the highway bridge. The Traction Company has not operated its line for some time and it appears to be doubtful when the operation will be resumed, if at all.

Moving Earth by Motor Truck

Sterling 7-Ton Trucks Move 82,000 Cubic Yards at Troy

An interesting application of the motor truck to the work of moving earth from the excavation to levee or spoil bank was seen on the work of the Miami Conservancy District at Troy, Ohio, during the winter of 1920-21. The excavation was for the improved channel of the Miami River through the city. Part of this was done "in the wet" by dragline excavator, and part "in the dry" along the bank by steam shovel. A part of the wet excavation was overcast into a spoilbank along shore, from which it was again handled by steam shovel. Materials from both wet and dry excavation were transported to their final location in a spoil bank along Market Street by 7-ton Sterling trucks, the average haul being about 500 feet. All of the work was between the railway and the Adams Street bridge in the city, the total quantity being 140,000 cubic yards.

The work was let by contract by the Miami Conservancy District to the C. and C. Haulage Company of Columbus, Ohio. Under the conditions and especially with the length of haul, it was not, of course, considered that such a contract, so handled, would prove especially profitable, but with the usual winter season giving a chance for "hard bottom" for the trucks on frozen ground, and as furnishing employment for equipment through the slack season of the year, it was thought by the C. and C. Haulage people to be a "bet" worth taking, and work was begun in July, 1920.

The two figures show the equipment at work. The excavation was done by two Osgood No. 18 steam shovels, with buckets of 7/8 cubic yard capacity. The trucks hauled, as an average over the entire work they did, 2½ cubic yards per load, measured in the finished work. The material was deposited on low ground on each side of Market Street, the plan being to bring this low ground to an elevation sufficient for building lots. Part of the excavated material was used also to build a 115-foot levee between Market and Adams Streets. The total quantity hauled was 82,000 cubic yards, or about 60 per cent of the total, after which the trucks were

These were seven-ton Sterling trucks, used at Troy in transporting earth from the point of excavation on the bank of the Miami, to be used in building an adjacent levee, or in raising the level of low land on each side of Market Street so that it would be suitable for building lots. During good weather the trucks worked well in this service. Rain, however, would put them out of business, due to the difficulty of climbing the steep grade (8 per cent) of the "ramp" or incline leading from the river bottom to the top of the embankment to be built. A fifteen minute shower would not infrequently "grease" the ramp sufficient to make the wheels slip. Of course, wet weather interferes seriously with earth moving by wagon also, but not so seriously as it did with the trucks. The average haul was about 500 feet. The average load was 2½ cubic yards. About 82,000 cubic yards were moved by the trucks.

FIG. 315—TRANSPORTING EARTH IN SEVEN-TON TRUCKS, SEPT. 7, 1920

withdrawn for other work. About 25,000 cubic yards of the 82,000 was used to fill the building lots, the remainder going into the levee. The average haul, as stated, was about 500 feet. The maximum grade on the "ramp" leading to the top of the embankment where the material was dumped was 8 per cent.

The performance of the trucks during fair weather was good. They took the incline with little difficulty, going either head-on, or backing up, just as it came convenient, the backing being similar to the backing up an incline to dump gravel into the hopper of a concreting layout, and therefore a familiar operation to the drivers. Dumping of the materials was assisted by building a false bottom into the truck bodies, with its forward end raised about 8 inches above the regular bottom, thus steepening the slope of the truck body when in the dumping position, sufficient so that the material would not stick. This was necessary, since although the trucks were built to dump gravel, and would do this without the gravel sticking, most of the material in the Troy excavation was top soil, more tenacious than gravel, and requiring a steeper slope to slide the material out clean.

The chief difficulty was due to wet weather. A smart 15-minute shower might "queer the whole works," the rain "greasing" the incline of the ramp to a point where the truck wheels would spin helplessly without getting action. Such a shower not infrequently would stop the work for a half day. A longer storm did not increase this difficulty, but simply extended the trouble over a longer period. It was simply a question of how long it would take the ground surface to absorb the "grease," after the rain was over. Horse-drawn dump wagons used on another part of the work experienced similar difficulty, due in that case, of course, rather to "gumming up the works" than to wheel slippage. Naturally, the trucks suffered somewhat more than the dump wagons during such stormy seasons. Probably, with the quantity of material to be moved, 4-yard narrow gage dump cars on tracks would be most economical for a contractor in such a case.

Conditions as they developed during the work were not so favorable as had been expected. The weather was so mild during most of the winter that there was little frozen ground to work on, and this made the hauling materially heavier. There was also a thicker upper layer of the stickier top soil than was expected, with a correspondingly less depth of gravel, and this also made a decided difference in the time lost in keeping the truck bottoms clean so as to permit quick, free dumping.

The C. and C. Haulage Company has recently arranged with T. Daniel and Son, of Dayton, to take over this work, in order that they might themselves devote their entire equipment to road work, contracts for which had been made the preceding autumn. They had completed, up to the time of removal of their equipment, about 82,000 cubic yards —or approximately about 60 percent of the total.

The vertical scale gives the amount of water flowing in the rivers in thousands of cubic feet of water per second of time. The storm that caused this period of high water consisted of a series of heavy showers. These showers are illustrated in Fig. 307. The intermittent rainfall introduced some variations in the curves, as compared with curves made from a storm with steady rainfall. The abrupt jumps in the curves all come from heavy local showers. Separate curves are shown for the Miami at Piqua, the Mad at Springfield and the Stillwater at West Milton, points where the conditions have the most effect on the river stage at Dayton. The time it takes for the crest stage at these stations to reach Dayton can be observed by noting how the crest of river stage at Dayton lags behind the crest of the stations to the north. In general, high stages

(Continued below)

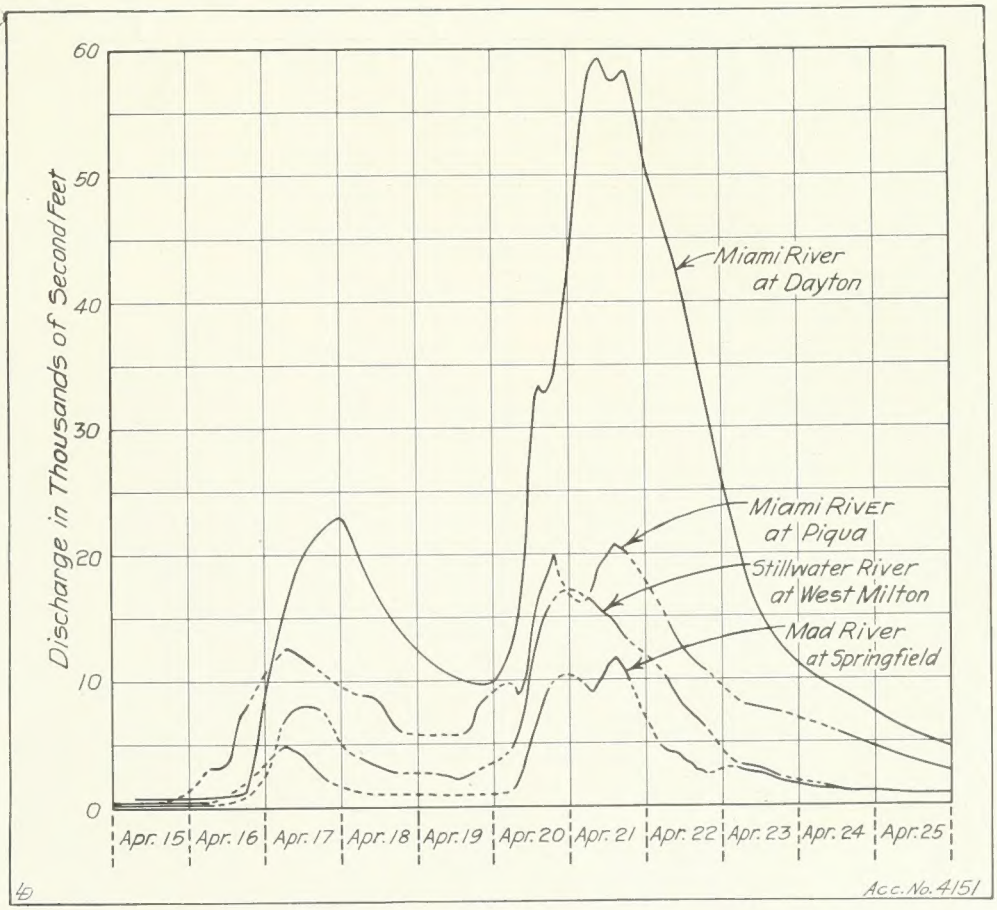


FIG. 316—DIAGRAM SHOWING COMPARISON OF RIVER STAGES, FLOOD OF APRIL, 1920

from several upper stations must arrive at Dayton simultaneously to produce a high stage there.

FOR SALE

COMMISSARY SUPPLIES

CAFETERIA EQUIPMENT

BAKESHOP OUTFIT

The finishing of the Germantown dam, and the drawing toward an end of the entire flood prevention project, enables the Conservancy District to place on sale the following items, some new, some used, and all in good condition.

Terms Cash F. O. B. Point of Storage.

List No. 1

Articles For Sale by the Miami Conservancy District

Dayton, Ohio, April 16, 1921.

All Articles Sold in Standard Packages Only as for Wholesale Shipment.

COMMISSARY SUPPLIES, UTENSILS AND FOODS

Article	Quantity	Prices	Location	Condition
Allspice—Durkee (¾ oz.)	6 doz.	$ .35 doz.	Dayton Warehouse	New
Asparagus—No. 1	79½ "	1.75 "	" "	"
Chimneys—No. 1 Lamp	9	1.15 "	" "	"
Clams—Savoy No. 2	27¾ doz.	2.50 "	" "	"
Cloves—Ground (1 oz.)	40 "	.45 "	" "	"
" " (2 oz.)	18 "	.75 "	" "	"
" " (5 lb. c.)	15 lbs.	.30 lb.	" "	"
" Whole (5 lb. c.)	20 "	.35 "	" "	"
Corn—Pop	58 "	.15 "	" "	"
Cullenders—Retinned Hotel	11	1.50 each	" "	"
Dishes—Small Nickeled Soap	24	.10 "	" "	"
Dishes—Butter	1680	.06 "	" "	"
Forks—18" Daisy Meat	1½ doz.	2.00 doz.	" "	"
Gelatine—Plymouth, 2 oz.	2 "	1.50 "	" "	"
Ginger—Ground (1 oz.)	35 "	.40 "	" "	"
" " (5 lb. c.)	120 lbs.	.20 lb.	" "	"
Jugs—3 gal.	4	.60 each	" "	"
Leaves—Bay, 1 lb. pkgs.	10 lbs.	.15 lb.	" "	"
Mace—1 oz. cans	52 doz.	.70 doz.	" "	"
" Ground—10 lb. pails	20 lbs.	.40 lb.	" "	"
Meat—Imperial Club Potted, ½ tins	6 doz.	.90 doz.	" "	"
Nails—Cobbler's Shoe, size 4-0	4 boxes	.60 box	" "	"
Netting—Mosquito (24 yds. to bolt)	1 bolt	1.00 bolt	" "	"
Olives—Heinz Calif., Ripe-Med. Empress	6 doz.	2.25 doz.	" "	"
Olives—Heinz Calif., ripe, small tins	4 "	1.00 "	" "	"
Pans—Frying, 9"	21	.25 each	" "	"
Pans—Frying, 12"	4	.26 "	" "	"
Paper—Wheat Straw Cigarette	1900 books	4.60 C. B.	" "	"
Paprika—1 oz. cans	38 doz.	.45 doz.	" "	"
Pepper—Red, 1½ oz. cans, shaker tops	9 "	.40 "	" "	"
Pepper—Red, bulk	4 lbs.	.20 lb.	" "	"
Pepper—White, 1 oz. cans	30 doz.	.40 doz.	" "	"
Peppermint—Essence of (1 oz.)	4 "	1.25 "	" "	"
Pins—Rolling	10	.25 each	" "	"
Polish—White Shinola Shoe	9 doz.	.85 doz.	" "	"
Polish—Barkeeper's Friend—Brass	18 "	10.00 gross	" "	"
Powder—Savoy Currey, 1 lb. tins	5½ "	5.15 doz.	" "	"
Sage—Ground, 2 oz. tins	52 "	.40 "	" "	"
" " 1 lb. tins	5 lbs.	.40 lb.	" "	"
Sago—Bulk	110 "	.06 "	" "	"
Savory—1 oz. cans	52 doz.	.50 doz.	" "	"

COMMISSARY SUPPLIES, UTENSILS AND FOODS—(Continued)

Article	Quantity	Price	Location	Condition
Scoops—Tin, 2 lb., 3 lb., 4 lb.	42	.25 each	Dayton Warehouse	New
Screws—Cork	2 doz.	.50 doz.	" "	"
Sets—Shinola Shoe Polishing	5 "	2.00 "	" "	"
Shoes—Style 2	21 prs.	2.00 pair	" "	"
" —Style 19	4 "	2.75 "	" "	"
Soap—Goblin (50 to c)	8 cs.	1.50 case	" "	"
" —Vulcan (100 to c)	6 cs.	4.50 "	" "	"
Spoons—Mustard	30 doz.	.25 doz.	" "	"
Strainers—No. 080 Hotel Chinese	11	1.70 each	" "	"
Straws—For Soft Drinks	5 M.	.40 M.	" "	"
Tartar—Cream of (1½ oz. cans)	6 doz.	.30 doz.	" "	"
" " " (1 oz. cans)	2 "	.50 "	" "	"
" " " (2 oz. cans)	20 "	1.00 "	" "	"
Thread—Giant White Carpet	12 "	.59 "	" "	"
Thyme—1 oz. cans	52 "	.20 "	" "	"
" —4 oz. tins	4 "	.75 "	" "	"
Turners—Cake, Plain	32	.15 each	" "	"
Mapleine—Crescent, 1 qt.	12 qts.	30.96 doz.	" "	"

CAFETERIA OUTFIT

Hughes Electric Frying Griddle—18"x54"	1	$100.00	Dayton Warehouse	Used
Urns—10 gal. coffee urn, 20 gal. hot water	1 set	70.00	Englewood	"
Urns—10 gal. coffee urn, 20 gal. hot water	1 "	100.00	Dayton Warehouse	New
Steam Table and Service Counters—18 ft. x 24 in.—Built in sections, 9 ft.	3 "	100.00 sec.	Englewood and Dayton Warehouse	" Used
Dish and Glass Washers and Dish Tables—Washer Model "AA" Crescent Electric Dish and Glass Washer—Motor 220 v — Tables square, 39' 6" around, 30" wide	2 "	225.00 each	Dayton Warehouse	Used
Enterprise Vegetable Slicer	3	9.00	" "	New
Meat Block—3"x40"x17"—Sectional Maple	1	15.00	" "	Used
Dish Wagon with 2 trays	4	35.00 each	" "	New
Vegetable Steamer—2 bu. capacity	1	25.00	" "	Used
Aluminum Trays—14"x18"—T. A. C. U. Wearever	476	1.75 each	" "	New
Model C Tyson Brine Ice Cream Freezer	1	225.00	Taylorsville	Used
Creasey Ice Breaker—52 Y	1	40.00	"	"
Sterling Meat Slicer—Hand or Power	1	70.00	"	"
Refrigerator—Schmidt Kitchen—12'x3'x3'	1	200.00	Germantown	"
Buffalo Meat Chopper—18"x20" Bowl—2 H. P., 3 Ph., 60 Cycle, 440 v. motor	1	175.00	Taylorsville	"
*Butter Dishes—Individual	1680	.06 each	Dayton Warehouse	New
Vegetable Side Dishes	1256	1.20 doz.	" "	"
Dinner Plates—9"	40 doz.	.15 each	" "	"
Bull Dog Mop Buckets—Wood	12	3.50 "	" "	"
*Colander—Retinned Hotel	11	1.50 "	" "	"
*Forks—Daisy Meat, 18"	1½ doz.	2.00 doz.	" "	"
*Pans—Frying, 9"	21	.25 each	" "	"
*Pans—Frying, 12"	4	.26 "	" "	"
*Pins—Rolling	10	.25 "	" "	"
*Scoops—Tin, 2 lb., 3 lb., 4 lb.	42	.25 "	" "	"
*Mustard Spoons	30 doz.	.25 doz.	" "	"
*Strainers—No. 080 Hotel Chinese	11	1.70 each	" "	"
Turners—Cake, Plain	32	.15 "	" "	"

*Also listed under Commissary Supplies, Utensils and Foods.

MISCELLANEOUS ITEMS

Blankets—Wool	280	$ 4.00 each	Dayton Warehouse	New
Blankets—Wool	201	2.50 "	" "	Used
Sink Lavatory	5	5.00 "	" "	"
Toilets	5	5.00 "	" "	"
Drinking Fountains	2	2.00 "	" "	"
Wood Frame Cots	17	1.00	" "	"
Steel Bunks—Single	7	3.00 "	" "	"
Steel Bunks—Double	39	4.50 "	" "	"
Hospital Outfit	1	25.00 "	" "	New
Oak Office Desks and Tables		10.00 up	" "	Used
New Crocker Type Office or Waiting Room Chairs	94	3.60 each	" "	New & Used
We also have for sale various sizes of the following:				
Electric Motors—alternating current—5 to 50 H. P.		As Agreed	" "	Used
York Refrigeration and Ice Making Machine		" "	Germantown	"
Studebaker Roadster	1	" "	Dayton Warehouse	
Steam Radiators of various sizes		" "	" "	
Window Sashes		" "	Dayton Warehouse	New & Used
Door and Window Frames		" "	" "	New & Used
Doors		" "	" "	New & Used
Office Printing Press, Type and Type Cabinet		" "	" "	

ONE COMPLETE BAKE SHOP EQUIPMENT

Article	Quantity	Price	Location	Condition
Dough Mixing Machine, 2 bbl. capacity, with 440 v., 60 cycle, 3 phase motor A. C. connected	1		Taylorsville	Used
Buckeye Bread Racks—9 shelves 5½″x2″, height 5′8″	2		"	"
Steel Dough Troughs—6 ft. long—3/16 boiler plate—flange top	2		"	"
Galvanized Iron Proofing Ovens—250 2-lb. loaves capacity. Made in 6 ft. lengths—6 shelves to each	3		"	"
Pastry Stove—Made of wrought steel	1		"	"
No. 2 Bread Pans—5 strapped together—17″x4½″—16½″x3½″—B. 3¼″ deep	220		"	"
Sink—42″x24″—16″ deep	1		"	"
Baker's Bowls—25 qt.—tinned steel	2		"	"
Hotel Egg Beating Bowls—17 qt.	2		"	"
Bowl Truck and Casters	1		"	"
Oven Peels with Handles	2		"	"
Peel Blade	1		"	"
Biscuit or Cake Sheets—18″x25″—Welded corners, made of No. 12B Iron	39		"	"
Bread Pans—Heavy tinned—8½″x4½″ top—7⅝″x3⅝″ bottom—2¾″ deep	446			"
Baker's Coal Truck—18″x20″x24″	1		"	"
Chantillon Dough Scale	1		"	"
Bonanza Apple Peeler and Corer	1		"	"
Muffin Pans	12		"	"
Cake Rack—with adjustable arms	1		"	"
Oven Table	1		"	"
Baker's Work Table—12′x4′x35″	1		"	"
Total		$900.00	"	"

Terms Cash F. O. B. Point of Storage.

Call or Address

Hosea F. Moyer, Sales Agent,
Miami Conservancy District,
Dayton, Ohio.

Telephone Main 2903.

FIG. 317—MESSHALL DINING ROOM, TAYLORSVILLE DAM, MAY 14, 1920